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Cont.

thereof. Then, in the second scan, the sensor senses the width  $W_1$  between the pattern elements of the base head, based on the center dot positions of the pattern elements. Repeating the above-described operation for the pattern element of the base head and those of the other heads to calculate the widths (distances)  $W_2, \dots$ , between the pattern elements of the base head and those of the other heads. Then, the head deviation amount  $\Delta W$  is calculated based on the difference of those widths.

To do so, a comparator 1502 converts the analog signal, which is output from a sensor 1501, into a binary (bi-level) signal as shown in FIG. 16. In the first scan, this binary signal is sampled in a predetermined timing in accordance with a timer 1503. Each time a pattern element is read, a CPU 1505 references the value of the timer 1503 to read the pattern width data of each of two pattern elements. After the scan is terminated, the distance from the edge of the pattern element to the center dot is calculated from the scan speed and the sampling frequency, based on the width data of each of two pattern elements. After that, setting the center value of each pattern element in the timer 1503 immediately before the pattern is read in the second scan causes the timer 1503 to output a carry signal at the time the carriage reaches the center position of the pattern element. By operating a timer 1504 using this carry signal, the distance between the center dot position of a pattern element and that of another pattern

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conc. element is calculated. This is done for the pattern elements of the base head and for the pattern elements of the base head and other heads to calculate the head deviation amount  $\Delta W$ .

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Page 14, lines 3-10, please replace this paragraph with the following paragraph:

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A2 A linear scale 109 provided next to, and parallel with, the scanning path of the carriage 106 has slits provided therealong at a predetermined resolution (resolution). A transmission type optical sensor (1203 in FIG. 12) installed near the carriage 106 reads the slits on the linear scale 109 to obtain two signals each with its own phase (90° out of phase). These signals are used to manage the position of the carriage 106 and, at the same time, synchronize the ink jet from the recording head 101.

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In the Claims:

Please amend claims 4, 5, 7 and 10 by replacing them with the like numbered claims hereinbelow. A markup sheet is included to illustrate the amendments made.

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A3 4. (Amended) The image forming device according to claim 1 wherein said pattern detecting means is a reflective sensor comprising a light emitting element and a light receiving element.

5. (Amended) The image forming device according to claim 1 wherein said low-resolution position detecting means